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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,815	11/22/2002	Ivett Alejandra Leyva	125466	9641
6147	7590	10/28/2005		
GENERAL ELECTRIC COMPANY GLOBAL RESEARCH PATENT DOCKET RM. BLDG. K1-4A59 NISKAYUNA, NY 12309			EXAMINER SUKMAN, GABRIEL S	
			ART UNIT	PAPER NUMBER
			3641	

DATE MAILED: 10/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/065,815	Applicant(s) LEYVA ET AL.	
	Examiner Gabriel S. Sukman	Art Unit 3641	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 August 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 2-5, 11-15 and 21-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 8-10, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 6, 7 and 16-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 8-10, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 2,982,495 to Griffith in view of U.S. Patent No. 6,637,187 B2 to Sanders et al. (hereinafter referred to as Sanders).

Claims 1, 8-10, 19, and 20 are rejected as stated in the previous Office Action. The applicable teachings of Sanders, cited in the previous Office Action are reiterated here:

Sanders discloses that gas turbine engines "are generally limited to flight speeds less than Mach 3 because of high temperatures" and that "[t]he current demand is for more fuel efficient, simpler, and lighter weight engine systems." Further, Sanders teaches that

[p]redicted performance for pulse detonation engines indicates that these engines offer increased efficiency over current systems, and that this increased efficiency is available over a wide range of flight speeds. The PDE offers several additional advantages over a conventional turbomachinery based engine system. These engines offer simplicity and light weight. The PDE is scalable over a range of sizes, and very small engines are possible. They also offer geometric flexibility that allows a wider range of more efficient propulsion/airframe integration schemes.

See col. 1, lines 19-35. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize pulse detonation

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engines with the tiltable lift engine arrangement taught by Griffith since pulse detonation engines are well recognized as a more advanced and capable engine, as evidenced by the disclosure and teachings of Sanders, and serve as a modern replacement for the gas turbine engines known in the prior art.

### ***Allowable Subject Matter***

Claims 6, 7, 16, 17, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Applicant's arguments filed 1 August 2005 have been fully considered but they are not persuasive. The examiner points out that Sanders is merely used for the broad teaching that pulse detonation engines are superior to turbine engines and are capable of replacing, and encouraged to replace, such engines, as the above-quoted passage from Sanders discloses. Applicant attempts to dilute this authoritative teaching by directing attention to a specific and secondary embodiment mentioned by Sanders in which the pulse detonation engines are used in combination with a turbojet or turbofan engine.

The examiner maintains that it is clear that the teachings of Sanders detailing the advantages of pulse detonation engines over turbine engines is sufficient to provide motivation to one skilled in the art to replace the engines in the arrangement of Griffith

with pulse detonation engines in order to reap those gains, regardless of the specific teachings of an inlet controller disclosed by Sanders.

Even if the specific teachings of Sanders were considered to weigh into the desirability of replacing turbine engines, there is nothing in Sanders to dissuade one of skill in the art to make the suggested modification. The disclosure of Sanders cited by Applicant is a mere example of a use of the inlet controller and is in no way a preferred embodiment or an arrangement that suggests what the invention is "particularly suited" for, as contended by Applicant. In other words, the examiner asserts that the configuration of the invention of Sanders in which pulse detonation engines are used in combination with turbine engines is only an alternative arrangement for using the inlet controller and does not represent the core utility of the invention. Applicant's argument relies on the proposition that Sanders' invention is particularly suited for use with a pulse detonation engine and turbine engine combination. Therefore, if this is not the case, then Applicant's arguments are largely moot.

Notwithstanding the first four paragraphs of the Summary of the Invention section of the Sanders patent that teach the general use of the inlet controller with various arrangements of pulse detonation engines that make no mention whatsoever of turbine engines, the fact that the PDE/turbine engine combination is an alternative embodiment is evident from the two sentences in the disclosure of Sanders that precede the passage cited by Applicant (see, in addition to col. 3, lines 36-53 [cited by Applicant], col. 3, lines 34-36): **"The rotary inlet flow controllers of this invention may process flow through all of a circular duct. They *may also* control airflow through an annular**

part of a circular duct.” In continuing the description of the controller for the annular part of a duct, Sanders goes on to state, “[t]his type of controller is particularly suited for a combined engine system, such as a turbojet or turbofan located in the center of a circular duct with a pulse detonation engine located around the periphery...” (all emphasis added). It is therefore clear that the first sentence refers to controlling flow through a circular duct without a turbine engine and that the second sentence refers to a secondary embodiment in which a pulse detonation engine is located in an annular part of the duct that is around a turbine engine (combination system). The combination system is clearly, then, a mere additional use of the controller of Sanders and **not** what the invention of Sanders is “particularly suited” for. The “particularly suited for” language in Sanders refers to the embodiment of the controller that is for an annular part of a circular duct, not the invention as a whole. The rest of the paragraph deals only with that embodiment and therefore all of Applicant’s contentions relating to that language as being evidence that “Sanders teaches that the subject rotary inlet flow controller is particularly suited for a combined engine system” are grossly inaccurate and mischaracterizing.

Regarding claim 19, applicant’s argument is not directed to the substance of the rejection: that designing the cross-sectional areas of pulse detonation engines is a routine step, well-known as a necessary parameter, and that optimizing or adapting those parameters are therefore well within the purview of a routine consideration by one of ordinary skill in the art. Applicant argues that the limitations are not taught by the cited prior art and therefore there is no motivation. The fact that the examiner agrees

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that the prior art does not teach the limitation is implicit in the design choice-type rejection; however, the examiner maintains that motivation exists in the general knowledge of one skilled in the art in that it is always desirable to configure regularly designable parameters so as to best suit a device to function in its intended environment, cross-sectional areas of an engine being a regularly designable parameter and flight at high altitudes being a recognized intended environment. As Applicant has not addressed the elements of a design choice-type rejection, no further response is deemed necessary.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

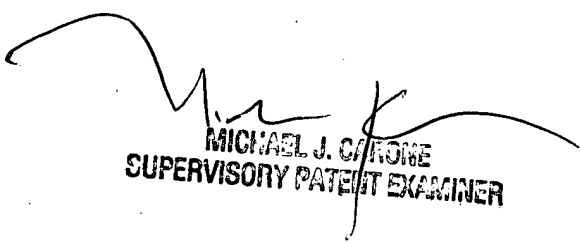
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gabriel S. Sukman whose telephone number is (571) 272-6883. The examiner can normally be reached on M-F, 8:30-6:00, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Carone can be reached on (571) 272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MICHAEL J. CARONE  
SUPERVISORY PATENT EXAMINER